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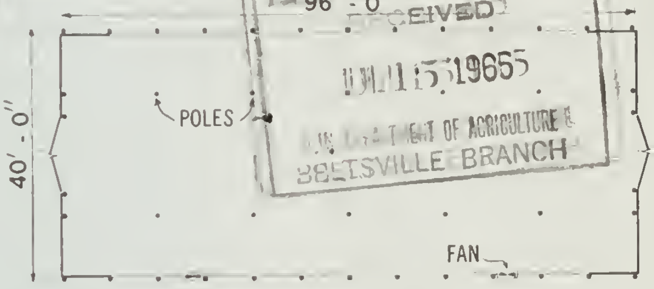
BROILER HOUSE

pole construction

COOPERATIVE
FARM BUILDING
Plan No. 5972
(3 SHEETS)
PLAN EXCHANGE



PLAN

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U.S. DEPARTMENT OF AGRICULTURE
BELTSVILLE BRANCH

Records of the production of broilers in insulated and uninsulated houses in Mississippi indicate that insulated houses—

- Reduce winter condemnations
- Reduce winter feed consumption
- Reduce winter fuel costs
- Reduce summer deaths from heat prostration

Ventilation must be controlled for high production of broilers in insulated houses. In spring and fall, natural ventilation of the upper side panels and the circular roof vents (10 inches in diameter; spaced 32 feet apart) dissipates the heat and moisture produced by the birds.

In winter, fans (equipped with thermostat, humidistat, and time clock, or a combination of these controls) spaced not more than 48 feet apart provide continuous air movement of 0.1 to 3.0 cubic feet per minute per bird. The top panels opposite the fans are opened 1.5 inches to provide uniform air intake.

In summer, both bottom and top panels may be opened and the fans may be relocated or reversed to give air circulation needed to cool the birds and the house.

An Arkansas agricultural engineer designed the house to maintain an inside temperature of 65° to 70° F. with a relative humidity of 80 percent when the outside temperature drops to as low as 29°. At these conditions, the wall and ceiling temperatures remain above the dew point. Thus, it is possible to conserve heat and reduce dust during the winter by maintaining a high humidity and a minimum ventilation rate.

Although the plan details a building only 96 feet long, the broiler house may be constructed in any length of 16-foot multiples. For houses longer than 96 feet, doors in the side wall will facilitate the handling of finished broilers. Bulk feed storage should be arranged to suit access to the building, feed delivery equipment, and method of feeding.

Washington, D.C.

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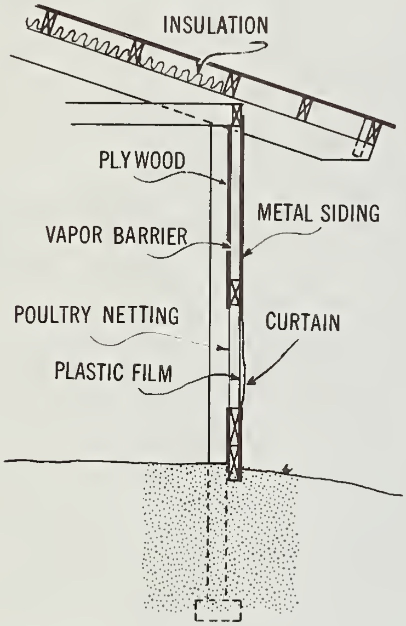
ALTERNATE WALL CONSTRUCTION:

The conventional side wall has a hinged panel above and below a fixed center panel. In southern coastal areas, alternate wall construction may be used. In the alternate construction the lower portion of the wall is protected with a curtain made of woven vinyldene chloride plastic or similar material. The curtain can be adjusted with cables attached to a rod sewed into the upper hem. The cables pass over pulleys and are attached to a main drag cable wrapped on a hand-operated winch.

Some growers prefer to seal the curtained area with polyethylene film during the winter. If the film is securely fastened over the bottom opening, an air inlet slot must be provided at the top of the wall.



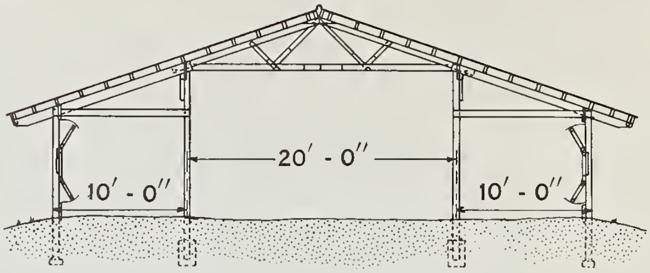
Restricted space for the first 3 weeks:

Limited research indicates that savings in fuel and labor may result if the birds are placed in a partitioned portion of the broiler house away from the main section for the first 2 or 3 weeks of brooding. If the brooders are placed in the space between the outside wall and the first line of posts, a partitioning curtain made of reinforced Kraft paper, plastic film, or similar relatively inexpensive material may be draped below a baffle 2 feet wide installed at the top of the posts. This 10-foot-wide section running the length of one bay has 160 square feet of floor area—enough for 800 birds. The curtain can be raised when the birds are 3 weeks old and they are then free to occupy the entire 640 square feet. It is cheaper and easier to heat 160 square feet than the entire 640.

CONSTRUCTION:

The spacing of the poles (16 feet on center bay) provides economical construction with space for easy clean out. Poles 10 feet inside the outside walls help support the roof at a lower cost than clear span construction. The inside posts provide convenient supports for water lines, fuel lines, and electrical lines and for equipment-hoisting cables.

Purlins of structural Southern pine (2 by 6 inches, 2 feet on center) will safely carry the following live loads:



	Pounds per square foot
Structural Southern pine:	
No. 1	15
No. 2	12
Kiln-dried structural Southern pine:	
No. 1	18
No. 2	15

A live roof load of 15 pounds per square foot for these roof purlins should withstand hurricane winds up to 110 miles per hour. The split rafter design permits use of nailing blocks to securely tie the rafters to the purlins to resist uplift.

This design is structurally well balanced. Stress from the load is approximately equal throughout the building. It is, therefore, economical in the use of materials. The bays (16 feet on center) are not too heavy to be erected with ordinary scaffolds and hand labor.

The roof can be insulated by placing the ceiling vapor barrier and insulation from overhead. Panels 4 feet wide and 16 feet long can be fabricated either on the ground or on the partly completed roof. These panels can be turned over into place on the roof. Edge purlins that abut one another on the panel can be made from 1- x 6-inch material. Panel joints can be taped with polyvinyl chloride adhesive tape after the building is complete.

Panels must be fitted around the rafter-to-purlin ties.

Complete working drawings may be obtained through your county agricultural agent or from the Extension agricultural engineer at most State agricultural colleges. There is usually a small charge.

ORDER PLAN NO. 5972,
BROILER HOUSE, Pole Construction

If the working drawings are not available in your State, write to the U.S. Department of Agriculture, Agricultural Engineering Research Division, Plant Industry Station, Beltsville, Md. The U.S. Department of Agriculture does not distribute drawings, but will direct your request to a State that does.

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